7-2-2020

Soybean Gall Midge Larvae Active in Iowa

Ashley Dean
Iowa State University, adean@iastate.edu

Erin W. Hodgson
Iowa State University, ewh@iastate.edu

Soybean Gall Midge Larvae Active in Iowa

Abstract

Soybean gall midge was confirmed as an economic pest of soybean in 2018. Worldwide, it is only known to occur in five states in the Midwestern US (Figure 1). Research began in 2019 to monitor the emergence of adults and incidence of larval feeding, as well as management options for the pest. This year, soybean gall midge adults were first collected on June 12 and larvae were detected in soybean on June 23.

Disciplines

Agricultural Science | Agriculture

IOWA STATE UNIVERSITY
Extension and Outreach

Integrated Crop Management

Soybean Gall Midge Larvae Active in Iowa

July 2, 2020

Soybean gall midge was confirmed as an economic pest of soybean in 2018. Worldwide, it is only known to occur in five states in the Midwestern US (Figure 1). Research began in 2019 to monitor the emergence of adults and incidence of larval feeding, as well as management options for the pest. This year, soybean gall midge adults were first collected on June 12 and larvae were detected in soybean on June 23.

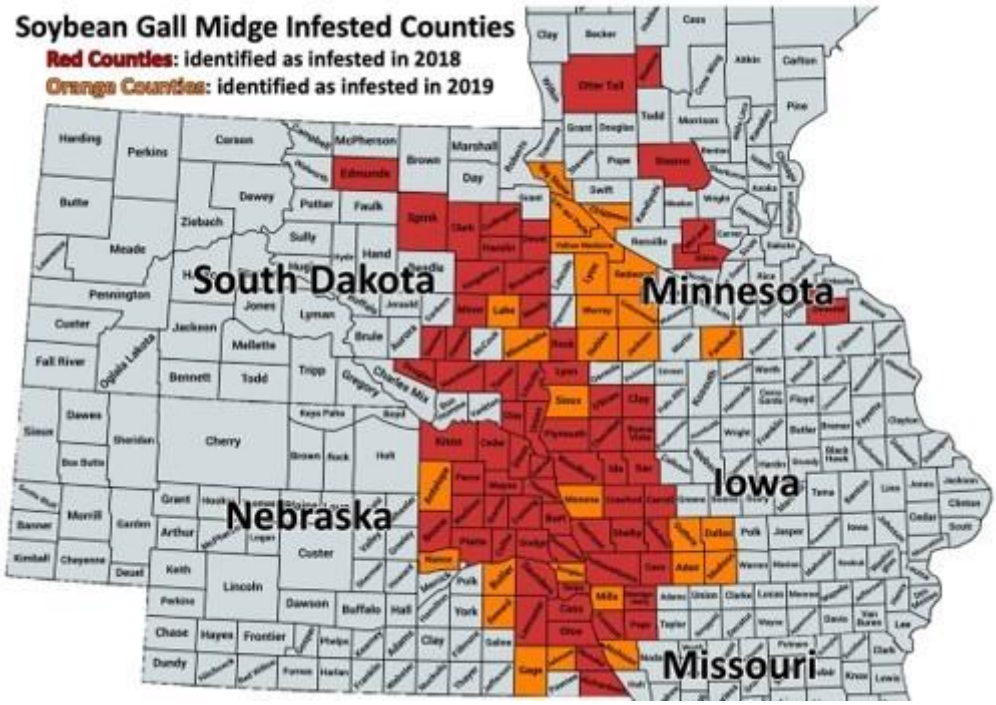

Figure 1. Soybean gall midge distribution from 2018 and 2019. Map by Justin McMechan, University of Nebraska-Lincoln.

Identification

Adult soybean gall midge is a small fly, approximately ¼ inch in length. They have long white and black banded legs and an orange abdomen (Photo 1). It is unlikely that you will see adult soybean gall midge in the field.

Photo 1. Adult soybean gall midge, female on the left. Photo by Mitchell Helton, Iowa State University.

The larvae of soybean gall midge are maggots, which lack legs and any distinct features. They go through three stages, or instars. First instars are small, translucent and difficult to see with the naked eye. Second instars are larger and milky-white, or light orange. Mature, third instars are bright orange and very active (Photo 2).

Photo 2. Soybean gall midge larvae turn orange as they mature. Note discolored plant tissue near feeding sites. Photo by Mitchell Helton, Iowa State University.

Plant Injury

The larvae are the damaging stage of the pest. Larvae feed on the tissues within the soybean stem, disrupting nutrient and water movement within the plant. At first, the stem may become dark and discolored near the soil line (Photo 3). Initial symptoms can be confused with fungal pathogens, like *Phytophthora* and *Rhizoctonia*. A gall may form, which appears as a swelling, discoloration or outgrowth of the stem. Infested plants will quickly wilt and die or break off at the site of feeding.

Photo 3. Split soybean stems near the soil line to look for larvae and feeding injury. Photo by Mitchell Helton, Iowa State University.

Scouting

Soybean gall midge overwinters as mature larvae in fields that were planted with soybean the previous year. Adults emerge from the soil and, since they are weak fliers, seek out the nearest soybean plants to lay eggs. Infestations typically begin at the field edge and expand to the field interior over the summer.

Fields adjacent to a field that was injured by soybean gall midge the previous year should be prioritized when scouting. In the first few rows of soybean, look at the base of plants for a dark discoloration at or above the soil line. Carefully peel back the layers of the discolored portion of the stem with your fingernail to look for white or orange larvae. A hand lens can aid in seeing larvae inside stems.

Unfortunately, there are no research-based effective management strategies to suppress larvae at this time. We are working to develop insecticide and other cultural tactics to reduce yield losses. Anecdotal observations show early-planted fields are more susceptible to infestations and subsequent severe plant injury.

If you suspect you have a soybean gall midge infestation, send us photos or contact your regional field agronomist to aid in confirmation. As we continue to monitor the spread of this pest throughout Iowa and the Midwest, please contact us if you have an infestation and you are in a county that is not represented in Figure 1. Real-time soybean gall midge activity in the US is reported on this regional website.

Category: Insects and Mites

Crop:

Soybean

Tags: soybean gall midge gall midge scouting gall midge larvae soybean pest

Authors:

Ashley Dean *Extension Program Specialist III*

Ashley is an extension program specialist for field crop entomology at Iowa State University. She coordinates the Iowa Moth Trapping Network, develops educational resources for field crop pests in Iowa, and aids in the research efforts of the

Erin Hodgson *Professor*

Dr. Erin Hodgson started working in the Department of Entomology at Iowa State University in 2009. She is an associate professor with extension and research responsibilities in corn and soybeans. She has a general background in integrated pest management (IPM) for field crops. Dr. Hodgson's curre...

Mitchell Helton